CLAIMS

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a polynucleotide fragment of SEQ ID NO:1 or a polynucleotide fragment of the cDNA sequence included in ATCC Deposit No: PTA-2679 or PTA-2674, which is hybridizable to SEQ ID NO1;

(b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:2 or a polypeptide fragment encoded by the cDNA sequence included in ATCC Deposit No: PTA-2679 or PTA-2674, which is hybridizable to SEQ ID NO:1;

(c) a polynucleotide encoding a polypeptide domain of SEQ ID NO:2 or a polypeptide domain encoded by the cDNA sequence included in ATCC Deposit No: PTA-2679 or PTA-2674, which is hybridizable to SEQ ID NO:1;

(d) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:2 or a polypeptide epitope encoded by the cDNA sequence included in ATCC Deposit No: PTA-2679 or PTA-2674, which is hybridizable to SEQ ID NO:1;

(e) a polynucleotide encoding a polypeptide of SEQ ID NO:2 or the cDNA sequence included in ATCC Deposit No: PTA-2679 or PTA-2674, which is hybridizable to SEQ ID NO:1, having caspase binding activity;

(f) a polynucleotide which is a variant of SEQ ID NO:1;

(g) a polynucleotide which is an allelic variant of SEQ ID NO:1;

(h) an isolated polynucleotide comprising nucleotides 78 to 1949 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 625 of SEQ ID NO:2 minus the start codon;

(i) an isolated polynucleotide comprising nucleotides 75 to 1949 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 1 to 625 of SEQ ID NO:2 including the start codon;

(j) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:1; and

(k) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(j), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a human leucine-rich repeat protein.

3. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.

4. A recombinant host cell comprising the vector sequences of claim 3.

5. An isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2679 or PTA-2674;

(b) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2679 or PTA-2674, having caspase binding activity;

(c) a polypeptide domain of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2679 or PTA-2674;

(d) a polypeptide epitope of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2679 or PTA-2674;

(e) a full length protein of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-2679 or PTA-2674;

(f) a variant of SEQ ID NO:2;

(g) an allelic variant of SEQ ID NO:2;

(h) a species homologue of SEQ ID NO:2;

(i) a polypeptide comprising amino acids 2 to 625 of SEQ ID NO:2, wherein said amino acids 2 to 625 comprise a polypeptide of SEQ ID NO:2 minus the start methionine;

(j) a polypeptide comprising amino acids 1 to 625 of SEQ ID NO:2; and

(k) a polypeptide encoded by the cDNA contained in ATCC Deposit No. PTA-2679 or PTA-2674.

6. The isolated polypeptide of claim 5, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.

7. An isolated antibody that binds specifically to the isolated polypeptide of claim 5.

8. A recombinant host cell that expresses the isolated polypeptide of claim 5.

9. A method of making an isolated polypeptide comprising:

(a) culturing the recombinant host cell of claim 8 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

10. The polypeptide produced by claim 9.

11. A method for preventing, treating, or ameliorating a medical condition, comprising the step of administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 5 or the polynucleotide of claim 1.

12. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

13. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or amount of expression of the polypeptide of claim 5 in a biological sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

14. A process for making polynucleotide sequences encoding a gene product having altered caspase binding activity comprising,

a) shuffling a nucleotide sequence of claim 1,

b) expressing the resulting shuffled nucleotide sequences and,

c) selecting for altered caspase binding activity as compared to the phosphatase activity of the gene product of said unmodified nucleotide sequence.

15. A shuffled polynucleotide sequence produced from the process of claim 14.

16. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence selected from the group consisting of:

(a) a polynucleotide encoding a polypeptide of SEQ ID NO:2;

(b) an isolated polynucleotide comprising nucleotides 78 to 1949 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 625 of SEQ ID NO:2 minus the start codon;

(c) an isolated polynucleotide comprising nucleotides 75 to 1949 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 625 of SEQ ID NO:2 including the start codon;

(d) a polynucleotide encoding the HLRRSI1 polypeptide encoded by the cDNA clone contained in ATCC Deposit No. PTA-2679 or PTA-2674; and

(e) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:41.

17. The isolated nucleic acid molecule of claim 16, wherein the polynucleotide comprises a nucleotide sequence encoding a human leucine-rich repeat protein.

18. A recombinant vector comprising the isolated nucleic acid molecule of claim 16.

19. A recombinant host cell comprising the recombinant vector of claim 18.

20. An isolated polypeptide consisting of an amino acid sequence selected from the group consisting of:

(a) a polypeptide fragment of SEQ ID NO:2 having caspase binding activity;

(b) a polypeptide domain of SEQ ID NO:2 having caspase binding activity;

(c) a full length protein of SEQ ID NO:2;

(d) a polypeptide corresponding to amino acids 2 to 625 of SEQ ID NO:2, wherein said amino acids 2 to 625 comprise a polypeptide of SEQ ID NO:2 minus the start methionine;

(e) a polypeptide corresponding to amino acids 1 to 625 of SEQ ID NO:2; and

(f) a polypeptide encoded by the cDNA contained in ATCC Deposit No. PTA-2679 or PTA-2674.

21. The method for preventing, treating, or ameliorating a medical condition of claim 11, wherein the medical condition is a proliferative disorder.

22. The method for preventing, treating, or ameliorating a medical condition of claim 11, wherein the medical condition is a gastrointestinal condition.

23. The method for preventing, treating, or ameliorating a medical condition of claim 11, wherein the medical condition is disorder related to aberrant apoptosis modulation, either directly or indirectly.